

*Vidua chalybeata chalybeata* (syn. *aenea*)  
*ultramarina* (syn. *neumanni*)  
*wilsoni* (syns. *nigeriae* and *camerunensis*)  
*centralis*  
*funerea* (syns. *amauropteryx*, *codringtoni*,  
*nigerrima* and *purpurascens*.)

Dr. L. Auber kindly examined some feathers of various phases of Indigo Birds. He reports that feathers other than from matt black birds show  
 “(i) the iridescence is not confined to the barbules inserted along the distal facet of the barb, but is seen also on the corresponding barbules inserted along the proximal facet of the barb, and

(ii) the iridescent terminal barbule portions (modified pennula) are less broadened than in *Sturnus*, their individual cells have less distinctly rectangular outlines, and each of the cells has its two terminal corners distinctly protracted into cilia.”

The feathers of the matt black type show moderate broadening of the pennula (and absence of hooklets from a considerable tip portion of the vane), and thus “a certain degree of the morphological specialisation that is rendered more prominent by iridescence” in the metallic phases. This appears to support the view already advanced above that the matt black “*nigerrima*” merely represents a failure to develop the normal feather structure. The feathers of the pure green “*nigeriae*” show a higher degree of broadening of the modified pennula than in other iridescent birds, which, Dr. Auber writes, would result in a more intense green than the steel green birds. Thus the pure green phase is due to over development of certain structural features in some individuals, i.e. the reverse of the under development of the matt type.

For assistance in these studies I am greatly indebted to the British Museum (Nat. Hist.) and the Musée de l’Afrique Centrale, Tervuren, for facilities to examine material, and to Dr. L. Auber for his microscopic examination of feather samples.

## A congenital abnormality in the beak of a Curlew

by JEFFERY G. HARRISON

*Exhibited at the February Meeting*

Through the kindness of N. T. Davey, a member of the Wildfowlers’ Association of Great Britain, I have received a Curlew *Numenius arquata* Linnaeus, which he shot on 29th October, 1962 on the Wash near Sutton Bridge, Lincolnshire.

The bird was a female in good condition, weighing 1lb. 12½oz. (weights of two females shot in December, 1962, 1lb. 14½oz. and 2lb. 4oz.). It was normal in every way except for its beak. As can be seen from the photograph, the upper mandible is grossly shortened, being 53 mm. short of the tip of the lower. In other respects, this is a normal upper mandible. The lower mandible is of normal length for a female (132 mm.), but at a point 8 mm. proximal to the end of the upper mandible there is a swelling and an incomplete fracture is present, the distal part of the fractured lower



Congenital bill deformity in a Curlew, showing the "short upper beak" and incomplete fracture of the lower mandible.

mandible being displaced downwards. The skull was perfectly developed and showed the normal partial pneumatisation, typical of the species. The rest of the body and the limbs were all normal.

The only evidence of injury in the beak is the incomplete fracture of the lower mandible. There is no doubt that this has been brought about gradually due to abnormal stresses on the unprotected projecting part, while the bird was feeding. It is remarkable that it had been able to keep itself in such reasonable condition with such a deformity, which, in my opinion, is due to the congenital defect known as "short upper beak".

*Discussion:* Congenital abnormalities in the beaks of wading birds are rare. Dr. James Harrison (1947) has recorded a remarkable case of a Bar-tailed Godwit *Limosa lapponica* Linnaeus with a bifid lower mandible, considered to be due to a congenital failure of the two halves of this mandible to fuse.

In a previous paper, Dr. Janet Kear and I (1962) described three types of congenital abnormalities in the beaks and skulls of wildfowl, based largely on eggs which failed to hatch at the Wildfowl Trust, the majority being wild Mallard *Anas platyrhynchos* Linnaeus. One was the condition of "short upper beak", which was found to occur either by itself or in association with acrania or meningocele. In that paper we wrote as follows:—

"In poultry, the condition of "short upper beak" is well known, often in association with micromelia (embryos with reduced limbs). This is discussed by Waddington (1952). A recessive gene known as "short

upper beak" was extracted by Landauer (1941) from a Houdan cross-bred flock. Originally it produced extreme inhibition of the growth of the maxilla and of the long bones of the limbs, usually resulting in death before hatching. Continued selection resulted in a stock in which the effects of the gene are much less severe and the homozygotes are often viable.

One would have imagined that the presence of the "short upper beak" would always prevent hatching, but this is not so, for Hilprecht (1956) has recorded Mute Swans *Cygnus olor* Linnaeus, both on Lake Geneva and in Hamburg with this condition, so that they had to feed with their heads on one side. The Curlew is obviously a further case in point.

It is of interest that six examples of congenital bill deformities should have been found at the Wildfowl Trust in 1961, whereas none was found in 1962. One is tempted to wonder whether there is any underlying external cause at work. Waddington records that insulin injections to 5-day embryos produce "short upper beak" deformities. The recent discovery that an infertile egg of a Peregrine *Falco peregrinus* Linnaeus from Perthshire contained no less than four toxic agricultural sprays of the chlorinated hydrocarbon group brought this to mind. (Moore and Ratcliffe, 1962.) These must have got into the egg via the falcon, which had absorbed them from her prey, which would most likely be pigeon, which had eaten contaminated corn. Do seed dressings cause congenital deformities, as yet another harmful side-effect? Wildfowl and Curlew are corn-eaters at times and it is certainly something which should be investigated.

*Acknowledgements:* I must thank Mr. N. T. Davey for sending me the Curlew described and Mr. Peter Whitaker for sending me three others for comparison. Dr. Janet Kear and Dr. James Harrison have advised me on this note and Dr. Pamela Harrison took the photograph for me. I am very grateful to them all.

References:

- Harrison, James M. (1947) "Malformation of Bill of Bar-tailed Godwit". *British Birds*, XL, 92-3.
- Harrison, Jeffery G. and Kear, Janet (1962) "Some Congenital Abnormalities in the Beaks and Skulls of Wildfowl". *Veterinary Record* 74, 632-633.
- Hilprecht, A. (1956). "Hocherschwan, Singschwan, Zwergschwan." A. Ziemsen Verlag, Wittenberg Lutherstadt.
- Moore, N. W. and Ratcliffe, D. A. (1962) "Chlorinated hydrocarbon residues in the egg of a Peregrine Falcon (*Falco Peregrinus*) from Perthshire. *Bird Study*, 9, 242-4.

## Non-melanic, carotenistic and allied variant plumages in birds

by C. J. O. HARRISON

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There has been some confusion in the past in the recording and description of variant plumages, especially those concerned with red and yellow pigments, and this paper represents an attempt to clarify some part of this.

Four terms are usually used in describing plumages showing variant coloration. These are:— *Melanism*, which refers to an increase in melanic pigment resulting in an abnormally dark plumage; *Albinism*, which refers